

REGULAR ORIGINAL FILING

Application Based on

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**A METHOD FOR CAPTURING METADATA IN A CAPTURED
SCENE**

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A METHOD FOR CAPTURING METADATA IN A CAPTURED IMAGE

FIELD OF THE INVENTION

The present invention relates to capturing images and their
5 associated metadata and, more particularly, to capturing metadata directly into the
captured image.

BACKGROUND OF THE INVENTION

In the photographic industry, there is often a desire to include data
10 relating to the circumstances surrounding capture of an image, i.e., metadata.
Currently, metadata, such as camera orientation, may be captured by special
devices included in the camera specifically for this purpose. This metadata is then
concatenated to the digital file for later use in processing the image. For example,
US patent 5,659,805 discloses including rotatable magnets in the camera for
15 capturing metadata relating to camera orientation.

Although the currently known and utilized method for capturing
metadata is satisfactory, it includes drawbacks. Capturing and then including
additional metadata requires additional devices that are expensive and prone to
inherent mechanical and electrical malfunctions.

20 Consequently, a need exists for capturing metadata directly by
analyzing the desired captured image.

SUMMARY OF THE INVENTION

The present invention is directed to overcoming one or more of the
25 problems set forth above. Briefly summarized, according to one aspect of the
present invention, a method for capturing metadata in a captured scene, the
method comprises identifying a unique "landmark" in the scene; acquiring the
metadata represented by the unique landmark; and adding the metadata to the
image file.

30 The above and other objects of the present invention will become
more apparent when taken in conjunction with the following description and

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drawings wherein identical reference numerals have been used, where possible, to designate identical elements that are common to the figures.

Advantageous Effect of the Invention

- 5 The present invention has the advantage of capturing metadata directly into the desired captured image.

BRIEF DESCRIPTION OF THE DRAWINGS

- Fig. 1 is a drawing of the present invention illustrating capturing
10 metadata directly into an image; and

Fig. 2 is a perspective view of a processor for processing the captured images.

DETAILED DESCRIPTION OF THE INVENTION

- 15 Referring to Fig. 1, there is shown a drawing of the present invention having a digital camera 10 for capturing an image. The digital camera 10 includes optical devices for focusing the incident light on a light sensitive device (such as a charge-coupled device or CMOS imager) for capturing the image, and includes memory for storing the captured image, all of which are well
20 known in the art and will not be discussed in detail herein.

- The scene to-be-captured includes a landmark 20 that functions as metadata for the captured scene, as will be described in detail herein below. An example of such a scene may be an image of a Disney cartoon character with a unique pattern or landmark as a part of the scene, such as Minnie Mouse wearing
25 a dress with a particular pattern. It is instructive to note that the landmark 20 may be a pre-determined pattern occurring either naturally or intentionally inserted into the scene. Recognizing the metadata represented by the unique pattern in the scene permits the image to be tagged with information unique to this particular time, place, people in the scene and the like. This metadata will eventually be
30 tagged onto the image header file and used in processing the image.

Another application, upon recognizing the metadata, would be to generate a digital coupon that would be tagged onto the image header file to

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identify downstream value added products and/or services. The particular coupon generated would be based on the deciphered metadata.

The scene may further include other real-life people of interest to the user. The user then captures the scene with the camera 10 having the known landmark 20, and the image is stored in memory. Pattern recognition software is stored in memory 40 of the camera 10 and used for recognizing the particular landmark. Upon recognizing the landmark 10 via the software, unique metadata information is added to the electronic representation of the image as described above.

Referring to Fig. 2, upon subsequent photofinishing, processing hardware 50 reads the included metadata either stored in the image itself or stored as a part of the image file itself. Upon reading the metadata, the processor 60 identifies pre-determined consumer items to be given to the user; for example, advertisements, promotions, discount coupons, a URL address of interest to Disney tourists or the like to be given to the user. The processor 60 may automatically do this or output a signal for human intervention.

Referring again to Fig. 2, the metadata could also be left in the digital file as returned to the customer. Subsequent processing of the file by the customer 70 would be greatly enhanced by the availability of the metadata attached to the file. For example, the metadata would enhance the ability to automatically creating an index to help with locating their images within large databases.

In another embodiment, an embedded watermark that is imperceptible to the human eye is embedded in the in the landmark. The embedded watermark may contain, for example, a time/date indication, light conditions forecast for the particular day and the like. This is metadata is then decoded for use in processing the image. Embedded watermarks are well known in the art and will not discussed in detail herein.

The invention has been described in detail with particular reference to certain preferred embodiments thereof, but it will be understood that variations and modifications can be effected within the spirit and scope of the invention. For

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example, the image may be captured on a conventional film camera and converted thereafter into digital form.

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PARTS LIST

- 10 camera
- 20 landmark
- 40 memory
- 50 processing hardware
- 60 memory
- 70 customer (personal computer, information appliance, etc.)

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